

## CLAIMS

1. A process for producing a light absorbing layer for a chalcopyrite type thin-film solar cell, characterized in that the process comprises:

a precursor forming step of superimposing on a backside electrode layer formed on a substrate, an In metal layer adjacent to the electrode layer and a Cu-Ga alloy layer by sputtering;

a first selenization step of accommodating the precursor-formed substrate in an airtight space and introducing hydrogen selenide gas into the airtight space conditioned to a temperature in a range from room temperature to 250°C;

a second selenization step of heating an interior of the airtight space to a temperature in a range from 250° to 450°C and additionally introducing hydrogen selenide gas into the airtight space;

a third selenization step of heating an interior of the airtight space to a temperature in a range from 450° to 650°C, and performing heat treatment of the substrate under the above temperature conditions, while causing the hydrogen selenide gas introduced up to the second selenization step to remain in the space; and

a cooling step of cooling the substrate after the heat treatment.

2. The process for producing the light absorbing layer for the chalcopyrite type thin-film solar cell according to claim

1, characterized in that the second selenization step includes an evacuating step of interrupting the supply of hydrogen selenide gas and evacuating the interior of the airtight space.

3. The process for producing the light absorbing layer for the chalcopyrite type thin-film solar cell according to claim 1, characterized in that hydrogen selenide gas is continuously supplied immediately after the first selenization step and in the second selenization step.

4. The process for producing the light absorbing layer for the chalcopyrite type thin-film solar cell according to any one of claims 1 to 3, characterized in that the substrate is accommodated almost in an upright position in a cabinet rotatably disposed in the airtight space and the cabinet is rotated in at least one of the first, second, third selenization steps and the cooling step.